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INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

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Sheet 1 of 11

## Complete if Known

Application Number	09/844,435
Filing Date	04/30/01
First Named Inventor	Lawrence Loomis
Group Art Unit	1651
Examiner Name	Unassigned

Attorney Docket Number 38228-0006

## U.S. PATENT DOCUMENTS

Examiner Initials	Cite No <sup>1</sup>	Document Number Number - Kind Code <sup>3</sup> (if known)	Publication Date MM DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US- 6056954	05/02/00	Fischetti, et al	
	2	US- 5937862	12/07/99	Fischetti, et al	
	3	US- 5985271	11/16/99	Fischetti, et al.	
	4	US- 5688501	11/18/97	Merril, et al	
	5	US- 4742981	05/10/88	Converse	
	6	US- 2019789	11/05/35	Mahannah	
	7	US- 2763931	09/25/56	McMillan	
	8	US- 5479732	01/02/96	Bunch, et al	
	9	US- 3465445	09/09/69	Fisher	
	10	US- 2315260	03/30/43	Lancaster	
	11	US- 5604109	02/18/97	Fischetti, et al	
	12	US- 5260242	11/09/93	Robinson, et al	
	13	US- 4957686	09/19/90	Norris	
	14	US- 6017528	01/25/00	Fischetti, et al	
	15	US- 6132970	10/17/00	Stemmer	
	16	US- 3852424	12/03/74	Gaeumann, et al	
	17	US- 6264945	07/24/01	Fischetti, et al	
	18	US- 6254866	07/03/01	Fischetti, et al	
	19	US- 6248324	06/19/01	Fischetti, et al	
	20	US- 6238661	05/29/01	Fischetti, et al	

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## FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
	21	EP-0510907 A 2	10/28/92	Agricultural & Food Res.		
	22	WO-9702351	01/23/97	CIBA Geigy AG, et al		
	23	WO-9607329	03/14/96	Univ. Maryland		
	24	WO-9904809	02/04/99	Ambi, Inc.		
	25	FR-2357246	02/03/78	Martinez		
	26	WO-9531562	11/23/95	Quest International B.V.		
	27	EP-587541 A1	03/16/94	Tecnogen ScpA		

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Applicant's due citation designation number (optional). See Kinds Codes of USPTO Patent Documents at 37 CFR 1.56 or MPEP 601.04  
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Sheet	2	of	11

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EL	28	US- 6056955	05/02/00	Fischetti, et al	
	29	US- 5882631	03/16/99	Suga, et al	
	30	US- 5741487	04/21/98	Asar, et al	
	31	US- 5113387	09/05/00	Mori, et al	
	32	US- 4122159	10/24/76	Schmitt	
	33	US- 3983209	09/28/76	Schmitt	
	34	US- 4885163	12/05/89	Shaar, et al	
	35	US- 6177554	01/23/01	Woo, et al	
	36	US- 6187757	02/13/01	Clackson, et al	
	37	US- 5162226	11/10/92	Beachey, et al	
	38	US- 6335012	01/01/02	Fischetti, et al	
	39	US- 6326002	12/04/01	Fischetti, et al	
	40	US- 6277399	03/21/01	Fischetti, et al	
	41	US- 4062941	12/13/77	Davies	
	42	US- 5571667	11/05/96	Chu, et al	
	43	US- 5514602	05/07/96	Brooks Jr, et al	
	44	US- 5500350	03/19/96	Baker, et al	
	45	US- 5384265	01/24/95	Kidwell, et al	
	46	US- 4361537	11/30/82	Deutsch, et al	
	47	US- 5120643	06/09/92	Ching, et al	

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		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
EL	48	WO-9323544	11/25/93	The University Court of the University of Glasgow Amrad Corporation Limited		
	49	EP-0293249 A1	11/30/88	Bristol-Myers Squibb Company		
	50	EP-0646646 A2	04/05/95	The Public Health Research Inst. of the City of New York		
	51	EP-0359873 A1	03/28/90			

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Sheet 3 of 11

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First Named Inventor	Lawrence Loomis
Group Art Unit	1651
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Attorney Docket Number	38228-0006

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	52	US-4948726	08/14/90	Longoria	
	53	US-4459361	07/10/84	Getter	
	54	US-4552839	11/12/85	Gould, et al	
	55	US-4313734	02/02/82	Leuvering	
	56	US-4847199	07/11/89	Snyder, et al	
	57	US-4497900	03/05/85	Abram, et al	
	58	US-4707543	11/17/87	Zollinger, et al	
	59	US-5763251	06/09/98	Gasson	
	60	US-6159688	12/12/00	Borchert, et al	
	61	US-4784948	11/15/88	Scott, et al	
	62	US-5760026	06/02/98	Blackburn, et al	
	63	US-5602040	02/11/97	May, et al	
	64	US-4521252	06/04/85	Miyako, et al	
	65	US-4359222	10/19/82	Rabussay	
	66	US-4115546	09/19/78	Vidra, et al	
	67	US-4116327	09/26/78	Eglington, et al	
	68	US-3929394	12/30/75	Hirsch, et al	
	69	US-6083684	07/04/00	Gasson	
	70	US-5360617	11/01/94	Gasson	
	71	US-5079174	01/07/92	Buck, et al	

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15. The applicant should attach the document to the 'Two-letter code-A' (PQ Standard ST-16). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by appropriate symbols as indicated on the document under WIPO Standard ST-16, if possible.<sup>1</sup> Applicant is to place a check mark here if English language Translation is attached.

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Sheet	4	of	11
		Attorney Docket Number	38228-0006

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				Application Number	09/844,435
<i>(use as many sheets as necessary)</i>				Filing Date	4/30/03
				First Named Inventor	Lawrence Loomis
				Group Art Unit	1651
				Examiner Name	Unassigned
Sheet	5	of	11	Attorney Docket Number	
38228-0006					

#### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

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EXAMINER Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

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				Examiner Name	Unassigned
Sheet 6		of 11	Attorney Docket Number 38228-0006		

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS		
Examiner Initials *	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
SLP	84	BABENKO et al. Enzymatic lysis of staphylococci in relation to their species and strain properties. 1990. Database Medline Online. US National Library of Medicine, Bethesda, MD, US. Database Accession No 90297672 XP002170795, abstract only
	85	BARTELL, et al. Origin of polysaccharide depolymerase associated with bacteriophage infection. Journal of Virology, March 1969, pp 290-296 Vol. 3, No. 3
	86	BEHNKE, et al. Cloning and expression in Escherichia coli, Bacillus subtilis and Streptococcus sanguis of a gene for staphylokinase - a bacterial plasminogen activator. Mol Gen Genet, December 1987, pp 528-534, Vol. 210
	87	BESSEN, et al. Chemical characterization of binding properties of opacity-associated protein II from Neisseria gonorrhoeae. Infection and Immunity, January 1987, pp 141-147, Vol. 55, No. 1
	88	BiZIULEV,CHIUS, et al. In vivo studies on lysosubtilin 3. Efficacy for treatment of mastitis and superficial lesions of the udder and teats in cows. 1998. Database Biosis Online. Biosciences Information Service. Philadelphia, PA, US. Database Accession No. PREV199800492606, XP002183274, abstract only
	89	BOIZET, et al. Cloning, expression and sequence analysis of an endolysin-encoding gene of Lactobacillus bulgaricus bacteriophage mv1. Gene, 2000, pp. 61-67, Vol. 94
	90	CALDWELL, et al. Purification and partial characterization of the major outer membrane protein of Chlamydia trachomatis. Infection and Immunity, March 1981, pp 1161-1176, Vol. 31, No. 3
	91	YOUNG et al. Phages will out: strategies of host cell lysis. Trends in Microbiology. Volume 8 No. 3, March 2000, pp 120-127
	92	CORBEL, et al. Soluble antigens obtained from influenza virus by treatment with non-ionic detergent. J Hyg, Camb., 1970, pp 81-96, Vol. 68
	93	CROUX, et al. Interchange of functional domains switches enzymes specificity: construction of a chimeric pneumococcal-clostridial cell wall lytic enzyme. Molecular Microbiology, 1993, pp 1019-25, Vol. 9, No. 5
✓	94	DIAZ, et al. Chimeric phage-bacterial enzymes: a clue to the modular evolution of genes. Proc. Natl. Acad. Sci. USA, October 1990, pp. 8125-8129, Vol. 87

Examiner Signature	<i>SLP/has</i>	Date Considered	11-20-03
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EXAMINER Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

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First Named Inventor	Lawrence Loomis
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### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
SLP	95	DIAZ, et al. Chimeric pneumococcal cell wall lytic enzymes reveal important physiological and evolutionary traits. Journal of Biological Chemistry. March 25, 1991. pp 5464-5471, Vol. 266, No. 9	
	96	DIXON, et al. Lysostaphin: an enzymatic approach to staphylococcal disease. III. Combined lysostaphin-methicillin therapy of established staphylococcal abscesses in mice. The Yale Journal of Biology and Medicine, August 1968. pp 62-68, Vol. 41, No. 1	
	97	FISCHETTI, et al. Size variation of the M protein in group A streptococci. Journal of Exp. Med., June 1, 1985. pp 1384-1401, Vol. 161, No. 6	
	98	GARCIA, et al. Bacteriophages of Streptococcus pneumoniae: A molecular approach. Microbial Drug Resistance. Summer 1997. pp 165-176, Vol. 3, No. 2	
	99	GARCIA, et al. Cloning, purification and biochemical characterization of the pneumococcal bacteriophage Cp-1 lysis. Journal of Virology. August 1987. pp 2573-2580, Vol. 61, No. 8	
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	101	GERARDY-SCHANN, et al. Molecular cloning and functional expression of bacteriophage PK1E-encoded endo-N-acetylmuramidase Endo NE. Molecular Microbiology. May 1995. pp 441-450, Vol. 16, No. 3	
	102	GOLDBERG, et al. Studies in experimental staphylococcal endocarditis in dogs. Antimicrobial Agents and Chemotherapy. 1967. pp 45-53	
	103	HARRISON, et al. Lysostaphin in experimental renal infections. Journal of Bacteriology. February 1967. pp 520-524, Vol. 93, No. 2	
	104	HARRISON, et al. Therapeutic activity of lysostaphin in experimental staphylococcal infections. Canadian Journal of Microbiology. January 1967. pp 93-97, Vol. 13, No. 1	
	105	HAYASHI, et al. Effects of N-Acetyl muramidase from Streptomyces rugersensis H-46 as a food preservative. Agric. Biol. Chem. December 1989. pp 3173-3177, Vol. 53, No. 12	

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## OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
SLP	106	HAYASHIDA, et al. Further characterization of PL-1 phage associated N-acetylmuramidase of Lactobacillus casei. Journal of General Microbiology, May 1987, pp 1343-1349, Vol 133, No. 5	
	107	HIGUCHI, et al. Transfection of streptococcus sanguis by phage deoxyribonucleic acid isolated from streptococcus mutans. Infection and Immunity, March 1977, pp 945-949, Vol. 15, part 3	
	108	HUAN, et al., Methicillin-resistant staphylococcus aureus infection and its treatment in burned patients. Chinese Journal of Surgery, 1994, Vol. 32, No. 4, abstract	
	109	HUGHEY, et al. Antimicrobial activity of lysozyme against bactena involved in food spoilage and food-borne disease. Applied and Environmental Microbiology, September 1987, pp 2165-2170, Vol 53, No. 9	
	110	KOHLER, Systemic therapy with aerosols. Aerosols in Medicine Principles, Diagnosis and Therapy, 1993. Elsevier Science Publishers, pp 303-319	
	111	LAWMAN, et al. Molecular cloning of the extracellular endodextransase of streptococcus salivarius. Journal of Bacteriology, December 1991, pp 7423-7428, Vol 173, No 23	
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	114	LOPEZ, et al., Architecture and domain interchange of the pneumococcal cell wall lytic enzymes. Genetics of Streptococci, Enterococci and Lactococci. Developments in Biological Standardization, 1995, pp 273-281, Vol 85	
✓	115	LOPEZ, et al. The pneumococcal cell wall degrading enzymes a modular design to create new lysins. Microbial Drug Resistance, November 2, 1997, pp 199-211, Vol 3, No 2	
	116	MARTIN, et al. Functional analysis of the two-gene lysis system of the pneumococcal phage Cp-1 in homologous and heterologous host cells. Journal of Bacteriology, January 1998, pp 210-217, Vol 180, No 2	

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✓EP	117	MUKHLIS, et al. Characterization and Immunogenicity of HSV-1 antigens obtained following zwitterionic detergent treatment. Vaccine. September 1986, pp 191-196, Vol 4	
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	120	OKI, et al. Functional and structural features of the holin HOL protein of the Lactobacillus plantarum phage analysis in escherichia coli system. Gene, 1997, pp. 137-145, Vol. 197	
	121	OKUHARA, et al. Preparation of group A streptococcal cell membranes by treatment with group C streptococcus phage - associated lysis. Annales Paediatrici Japonici, June 1983, pp 10-19, Vol 29, No 2	
	122	PATTON, et al. Routes of delivery case studies. Pulmonary delivery of peptides and proteins for systemic action. Advanced Drug Delivery Reviews. 1992, pp 179-196, Vol 8	
	123	POLAK, et al. In vitro activity of recombinant lysostaphin-antibiotic combinations toward methicillin-resistant staphylococcus aureus. Diagn. Microbiol. Infect Dis. 1993, pp 265-270, Vol 17	
	124	RAINAS. Purification of streptococcus group C bacteriophage lysis. Journal of Bacteriology. January 1981, pp 661-663, Vol 145, No. 1	
	125	RONDA, et al. Infection of streptococcus oralis NCTC 11427 by pneumococcal phages. FEMS Microbiology Letters. 1989, pp 187-192, Vol 65	
✓	126	SANZ, et al. Construction of a multi-functional pneumococcal murine hydrolase by module assembly. Eur. J. Biochem. February 1, 1996, pp 601-605, Vol 235, No 3	
	127	SATO, et al. Partial characterization of n - Butanol - solubilized rejection - type antigens of syngeneic murine colon tumors. JNCI. April 1985, Vol 74, No 4	

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<i>SLP</i>	128	SHEEHAN, et al. Analysis of the catylytic domain of the lysis of the lacticococcal bacteriophage Tuc2009 by chimeric gene assembling. FEMS Microbiology Letters. 1996. pp 23-28. Vol 140	
	129	SHEEHAN, et al. The lytic enzyme of the pneumococcal phage Dp-1. A chimeric lysis of intergeneric origin. Molecular Microbiology. 1997. pp 717-725	
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	131	YARNALL, et al. Isolation and partial characterization of a type II Fc receptor from a group A streptococcus. Molecular and Cellular Biochemistry. 1986. pp 57-66. Vol 70	
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Sheet	1	of	5	Filing Date	
				First Named Inventor	
				Group Art Unit	1616
				Examiner Name	GAWA, R.
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U.S. PATENT DOCUMENTS				
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number		
		6,264,945	Fischetti et al.	07-24-2001
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		6,017,528	Fischetti et al.	01-25-2000
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		5,985,271	Fischetti et al.	11-06-1999
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		6,113,887	Mori et al.	09-05-2000
		4,885,163	Shaar et al.	12-05-1989

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document		Name of Patentee or Applicant of Cited Document		
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
			WO 97 02351 A	CIBA GEIGY AG, et al.	01-23-1997	
			WO 96 07329 A	UNIV. MARYLAND	03-14-1996	
			EP 0 510 907 A	AGRICULTURAL & FOOD RES	10-28-1992	
			WO 99 04809 A	AMBI INC	02-04-1999	

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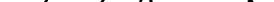
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SP		Reisenger, et al. (1998) "Characterization of Escherichia coli lysis using a family of chimeric E-L Genes" <i>Fems Microbiol Letter</i> . 164(1) p.159-167	
		Sheehan MM, et al. (1997) "The lytic enzyme of the Pneumococcal Phage Dp-1: a chimeric lysis of intergeneric origin." <i>Mol. Microbiol</i> . 25(4) p. 717-725	
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		Croux, et al.(1993) "Interchange of Functional Domains Switches Enzymes Specificity: Construction of a chimeric pneumococcal-clostridial cell wall lytic enzyme." <i>Mol. Microbiology</i> . 9(5) p. 1019-25.
		Diaz, E. et al. (1990) "Chimeric phage-bacterial enzymes: a clue to the modular evolution of genes. <i>PNAS</i> . 87(20) p. 8125-9.
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		Lopez, et al. (1997) "The pneumococcal cell wall degrading enzymes: A modular design to create new lysins?" <i>Microbiological Drug Resistance</i> . 3(2) p. 199-211.
		Loessner, et al. (1999) "Evidence for a holin-like protein gene fully embedded out of frame in the endolysin gene of <i>Staphylococcus aureus</i> Bacteriophage." (1999) <i>Journal of Bacteriology</i> . 181(15) p. 4452-4460.
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